Doctoral (PhD) Thesis

UNIVERSITY OF KAPOSVÁR
SCHOOL OF ECONOMIC SCIENCE
Company Economics Department

Head of the PhD school:
Dr. CSABA SARUDI
CSC, university professor

Topic leader:
Dr. Gyula Széles
MTA doctor

Topic co-leader:
Dr. Teréz Kovács
MTA doctor

ANALYSIS OF THE APIARIES IN THE SOUTH-TRANSDANUBIAN REGION WITH SPECIAL ATTENTION TO THE POSSIBILITIES IN ECONOMIC COOPERATION

Written by:
SZABOLCS ANDRÁS BARTOS

KAPOSVÁR
2008

1. PREMISE TO THE RESEARCH, GOALS

In today's rapidly growing economy farmers face great challenges to survive. Professional knowledge and experience is not enough in many cases in the harsh marketing competition. Due to this fact, the significance of cooperation is getting more and more important.

The Hungarian bee-keeping sector can be listed within the few agricultural sectors that show outstanding results despite not receiving acknowledgement. Honey production under favourable weather conditions can be up to 15-16 thousand tons, which puts us on the third-fourth place in the European Union. It is necessary to develop a form of economic cooperation in the near future that serves the economic interests of the beekeepers because of the harsh international market competition and because of the special nature of the national marketing channels.

One of the goals of this thesis is to show the history of our national bee-keeping based on secondary (economic and sociological) source data. A further aim of my research is to review the history of our national bee-keeping, legal regulations of Hungarian and European Union honey production, quality criteria for honey and the subsidization systems.

I would like to survey and demonstrate honey production, marketing and consumption in Hungary and in the European Union with the help of statistical data. I would like to analyse the willingness for cooperation of the beekeepers operating in the South-Transdanubian region, offering alternatives and revealing economic benefits.

During my research and the compilation of the thesis I tried to make an analyzing paper that can be used in practice, benefits the profession and can be a basis for further research.

2. MATERIAL AND METHOD

During the data collection for the basis of my research I processed information from primary and from secondary sources.

2.1. Secondary research

Secondary research was based on knowledge and analyses of international and national bee-keeping sectors, also international and national professional papers. I tried to pay special attention to honey production and marketing conditions, its legal regulations and the market relations. The data source for the analyses came from printed and electronic databases.

More important printed information sources for the secondary data were different expert books, papers, statistical analyses, research papers, conference papers, legal regulations, sector specific regulations, and other information booklets, weekly and daily periodicals. Electronic or computerized data sources were based on internet based and on off-line databases.

2.2. Primary research

I used **qualitative and quantitative research methods** to gain my primary data for the research.

2.2.1. Qualitative research

During my research I conducted 15 deep interviews with different persons in the apiary sector. First I visited five honey producing beekeepers in the South-Transdanubian region. There were two people from Baranya county, 2 people from Somogy county and one more person from Tolna country. The personal deep interviews were conducted at the different sites of the beekeepers, after a agreeing on a date and time for the interview on the telephone. The partially structured interviews made it possible to get a deeper, less obstructed view of the beekeepers opinion.

After this, also after a agreeing on a date and time for the interview on the telephone, I visited five honey buyers and honey merchants. I also conducted partially structured interviews with them. I asked my question mostly about honey marketing channels and buying prices.

During the expert deep interviews I visited five OMME (Hungarian National Apiary Association) management members. Similar to the interviews conducted earlier, I recorded the 60 minute-interviews on a Dictaphone for precise future processing. My questions were pointed mostly towards the state and possibilities of national beekeeping.

2.2.2 Quantitative research

The survey of the South-Transdanubian apiary sector – as primary research was conducted by a quantitative method, with survey questionnaires. I conducted the survey questionnaires in Baranya, Somogy and Tolna counties. Before the finalizing the from of the survey, I compiled 100 questionnaires and asked the beekeepers at the 10th Regional Beekeepers' meeting at the Kaposvár University and the members of the Kaposvár and

Region Beekeepers' Association to fill it out. I processed and analyzed the questionnaires that were returned to me. I disputed the results with 10 people, beekeepers from the Somogy and Zselic region, as a focus group analyses. After this I compiled he final form of the 1500-person questionnaire.

The questionnaires sent out mostly consisted of closed questions. I systematized the questions around four topics. In the first section I asked about apiary itself. In the second section honey production and marketing were in the focus of my questions. After this I asked about cooperation and willingness for cooperation. The last set of questions examined the background variables.

2.3. Processing the secondary and the primary research data

Examining the return and ratability of the questionnaires we can say that 1253 questionnaires were sent back from the originally sent out 1500, and out of these 1242 were processable. Thus the return rate was 83.5% and the ratability rate was 82.9%.

Microsoft Excel 2003 (Excel) software program helped the processing of the secondary data. I used SPSS for Windows 9.0 (**S**tatistical **P**ackage for **S**ocial **S**ciences) *(Sajtos, 2007; Köves-Párniczky, 1975)* and Excel software programs for the data recording and processing of the returned and checked questionnaires of the quantity research during the primary research.

3. RESULTS

3.1. Honey production of the "World"

Honey production of the "world" is getting concentrated. Next to the price competition production and marketing of special apiary products have an effect on the market. Cost reduction, standardization and intensive production has a more and more important role in increasing competitiveness. The numbers of bee families increase while the numbers of apiaries decrease *(Szabó 2004)*.

According to the FAO database, the world's honey production was 1.4 million tons in 2006. 71% of the produced honey was made in 6 countries or country groups. They were China, the United States of America, Argentina, the European Union, the Union of Independent Countries and Mexico. Honey production of the six biggest honey producing countries was 826 thousand tons in 2006; that is a 27% increase compared to 2001 *(Nyárs, 2001)*. 1. table

Honey production of the world in 2001 and in 2006

Countries	**Honey production in 2001** (thousand tons)	**Honey production in 2006** (thousand tons)
World together	1154	1456
China	182	255
CIS republics	151	144
EU	132	178
USA	65	100
Argentina	70	90
Mexico	49	59

Source: FAO database (www.fao.org), KSH Budapest

3.2. Honey production of the European Union

The European Union is the second biggest honey producing union with its 178 thousand tons of honey produced yearly. The Union's total import was 171 thousand tons in 2006; its export was 8 thousand tons (Szabó, 2004). The biggest honey producing counties in the European Union are Spain, France, Greece, Germany, Portugal, Italy, Hungary, Poland, the Check Republic, Slovakia, Romania and Bulgaria (table 2).

2. table

Honey production of the European Union

(thousand tons)

Countries	1997. year	1998. year	1999. year	2000. year	2006. year
EU	130	127	130	132	178
Spain	30	34	33	31	33
France	28	26	28	27	25
Greece	15	15	15	14	14
Germany	15	15	16	20	20
Portugal	11	11	11	11	4
Hungary	15	17	15	15	11
Poland	9	9	9	8	9
Check Republic	4	7	7	7	8
Slovakia	3	3	3	2	3
Italy	11	12	10	10	9

Source: Source: FAO database (www.fao.org), KSH Budapest

The Union can only cover about 50-55% of its consumption from internal production *(Vass, 2003)*. It procures the rest from the surrounding countries. Its most important suppliers are Argentina, Chine, Mexico and Uruguay (table 3).

3. table

Honey import of the EU (thousand tons)

Country	**1996. year**	**1997. year**	**1998. year**	**1999. year**	**2000. year**	**2006. year**
China	87	99	101	100	na.	120
Argentina	20	18	30	45	46	48
Mexico	17	16	18	19	20	21
Uruguay	3	5	4	4	5	5
Cuba	3	3	4	4	4	5

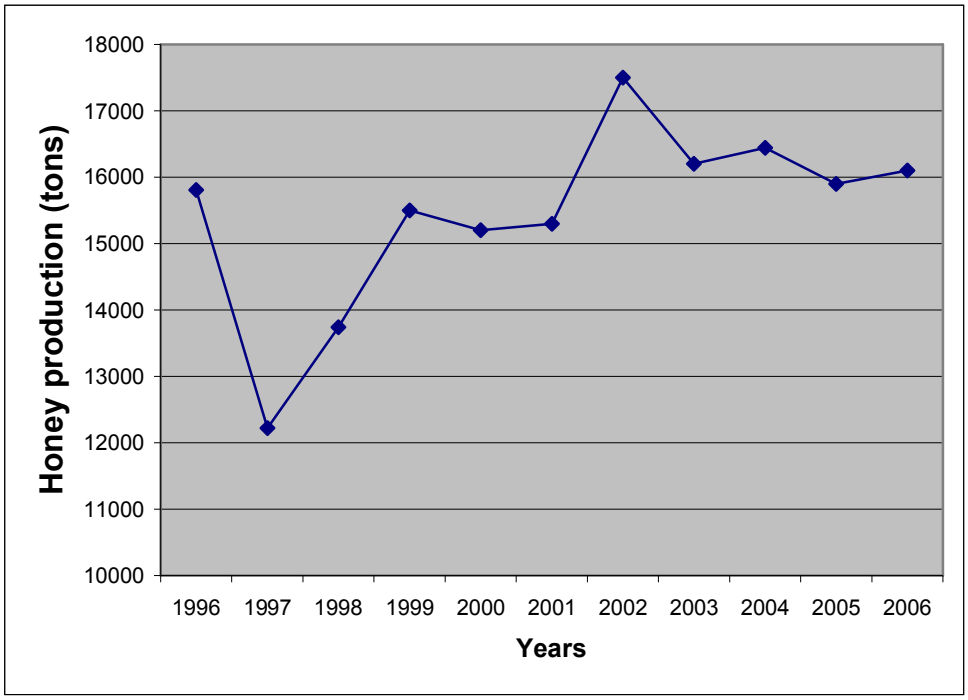
Source: Hollanday, 2001, KSH, FAO database

3.2.1. Changes in honey production in Hungary

Hungarian beekeeping is a small but significant sector in the Hungarian agriculture. It produces 1-1.5% of agricultural production. Honey production under favourable weather conditions can be up to 15-16 thousand tons. If we compare our honey production to the countries in the European Union, with the above quantity, Hungary is on the third-fourth place.

Hungarian honey production was 15810 tons in 1996. At that time specific yield was up to 23-25 kilograms per bee families. Analyzing the volume of the production one can observe, that the smallest production was in 1997

with 12220 tons. It was caused by the freezing of the acacia flowers, which are one of the most important nectar sources. There was another acacia frost damage in 1999, but despite this the Hungarian beekeepers produced more than 15 thousand tons of honey in 1999 *(Kecskés-Kulcsár 2000)*. Honey production reached its peak in 2002. Honey production decreased to 16200 tons in 2003 *(Bögréné, 2004)*. The main reason for this is the nectar production decrease of the plants producing specific kinds of honey. Production increased 1.5 % in 2004 compared to the previous year; this was followed by a 3.3 % decrease in 2005. Examining the honey production data since 2003, one can say, that due to favourable weather conditions, honey production stayed around 16000 tons a year.



1. picture Honey production in Hungary

Source: KSH

3.3. Honey market in the European Union

3.3.1. Honey consumption in the European Union

85 % of produced honey is consumed by households, 15 % is utilized by the industry. Italy utilizes the most honey in the industry (40%) among the European Union countries. Industrial honey is used mostly in bakery, sweet-, mill-, and alcohol industry as a sweetening agent. Other than this honey is used as a raw material in the pharmaceutical-, cosmetics- and tobacco industry. Despite of the spreading of the cheap substitutes (invert sugar, iso-sugar), honey retained its leading position in food processing. The reason for this is that honey contains extremely valuable components *(Oloványiné, 2003; Katona, 2001).*

Honey consumption of the European Union was 312 thousand tons in the 2005/2006 economic year. Human honey consumption is about 0.7 kilogram per year. Specific honey consumption of the Union countries is much higher that this. Austria had the highest specific honey consumption with 1.6 kilograms in 2006; this was followed by Greece with 1.5 kilograms, by Portugal with 1.2, by Germany and Denmark with 1.1 kilograms.

3.3.2. Honey market in Hungary

3.3.2.1. Hungarian honey consumption and honey export

According to data from the National Statistical Institution, honey consumption in Hungary is about 0.40 kg per person, per year. This quantity is significantly, 52% below of the Union's average and it does not show signs of improvement.

The cause of the low consumption level is not only in the changes of the honey's consumption price. More importantly only 10 % of the Hungarian population buys honey on a regular basis, the remaining 90 % only consumes honey from secondary sources *(Máriák, 2003)*.

About 80% of the honey produced in Hungary goes to foreign markets. In the last decades most of the export went to the Western European countries, thus 90% of the exported amount stayed in the European Union. The whole area of our country is suitable for beekeeping; about 16 types of honey can be produced.

The big Western European filling companies that sell prepacked honey buy two main export products from us, acacia and mixed flower honey. The areas most rich in acacia forests are the South-Transdanubian region, Vas-Zala counties, and some areas of the Bakony.

Today in Hungary, the main and only income source of the beekeepers is honey, within this is acacia honey. Acacia honey is the best selling of honey types and its price is the highest *(Németh 1980)*.

3.3.2.2. National honey marketing system

Two significant marketing channels developed in the national honey commerce. 83% of the produced honey goes to the market indirectly through buyers and vendors in barrels. The other parts (13%) get to the consumers directly, from houses or on markets in prepacked form, 1-1% goes to small merchants and industrial users in bottles.

Two-third of the honey buying companies are registered buyers, the others deal with honey merchandize next to their other activities. Most of the registered commercial enterprises are low-capital economic partnership or private entrepreneurship. Money necessary to buy honey is provided by the foreign buyer.

3.4. Economic analysis of the apiaries in the South-Transdanubian region

Examining the bees per capita ration in three counties (Baranya, Somogy, Tolna) in the South-Transdanubian region, we can say, that it is 10-12% higher than the national average (70 families). Due to favourable geographical location, the flora is very abundant in the region. We have to draw attention to the Zselic Hills, where the beekeepers can collect linden honey almost uniquely in the country.

3.4.1. Most important qualities of the beekeepers who answered the questionnaires

The youngest person in the research was 18 years old; the oldest was an 85 yea-old person. I asked about the beekeepers age in the background variables questions and I made six age groups during the processing of the data. The youngest people, less than 25 years old were in the first group. 1 % of the respondents were in this group. The other group is the people between 25 and 34 years (150 people). The next group is made of the people between 35-44 years (381 people), this makes up 30.7% of the respondents. The 45-54 age-group is in the fourth group. Their ratio is 40.7%. The older group, people between 55-64 years are represented by 157 people (12,6%), and the oldest people, who are 65 years old or older (48 people) is 3.9%.

It is important to point out, that the male-female ratio in the sector is 70-30%, which can be explained by the high physical work demand.

The question: "What activity form do you work in?" was answered "primary producer" by 63% of the respondents. Only 28.1 % of the people asked were private entrepreneur, and 8.9 % did not answer.

It is worthwhile to point out, the only 5.3% of the beekeepers work in the industry for less than 5 years, and 17% of them work in the industry for 5-10 years. 35% of the beekeepers work for 16-25 years as a beekeeper. The data from the survey supports the earlier mentioned countrywide statistics about the beekeepers, according to which the number of people working in the apiary industry increased in the middle of the 90s, but the number of the "starters" decreased in the recent years. It should be noted, that the 4% of the beekeepers have been working in the industry for 45 - 55 years (50 people).

Looking at the highest level of education, 40.5% of the respondents finished vocational school, 34.9% finished high school and 20.4% has college or university degree. 4.2 % of the respondents did not answer this question. The connection between level of education and working in the apiary industry is medium (C=0,411; p≤0,000).

The question "Where do you do your beekeeping work?" 20% said at a county seat, 11% in a city, 3% in a town, and 4% said in a village, while 11% did not answer the question.

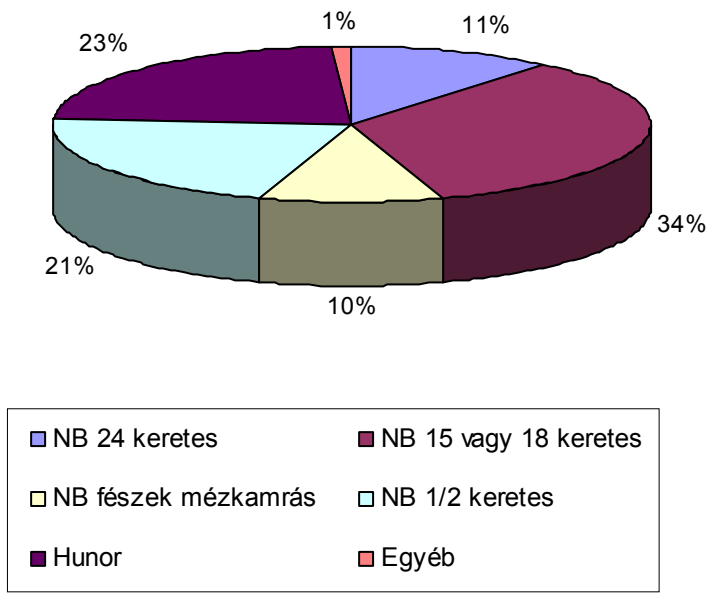
3.4.2. Analysis of the data collected about the apiaries

98.9% of the respondents (1242 people) were doing traditional beekeeping work. The numbers of bio-apiaries are not significant according to the processed questionnaires. This can be explained with the fact that there is a good market for the traditionally produced honey also. During bio-beekeeping there is extra work and cost that will bring extra profit also, but according to the beekeepers' answers in the deep interview, "profitability of traditional beekeeping is satisfactory".

More than half of the respondents (51.2%) do their beekeeping work as an auxiliary activity to their other activities. The remaining 48.8% are professional beekeepers.

I received a diversified picture to the questions regarding bee-hive types. Usage of the lying hive types, which have a higher work demand, can be observed at several locations. The ratio of the 24 frame Nagyboconád (NB) hives is only 11 %. Also only a few beekeepers work with NB nest honey-chamber hives. Most widely used is the lying type Nagyboconád 15-18 frame hive system (34%). From the loading type hives the Nagyboconád ½ framed is outstanding, 21% of the respondents uses that type, also the hunor

hive, which is used by 23 % of the respondents. In 1-1 % other lying and loading types of hives was mentioned (picture 2). This can be partially explained with routine, and also with the non-consciously considered work demand. On the other hand the replacement of the already existing hives is very expensive and risky. Deviation from a technology well-tried for many years (even if it is more efficient) is very difficult for many beekeepers. Hive type usage can be connected to age too, there was a loose connection between the two variables (C=0,400; p≤0,001). The older generation prefers the lying type hives, although they have a higher work demand, the ratio of hard, lifting physical work is less.



2. picture Usage of hive types in % of respondents (n=1242)

Next to the hive types used by the beekeepers, I also asked the numbers and the changes of numbers of the bee families. Based on the respondents' data I formed 3 well separated groups.

3.4.2.1. Hobby beekeepers

The first group consists of the "hobby beekeepers". 21% of the respondents were in this group. Bee families in this category are less than 50 families. We can divide this group into two parts. One part is made up of the traditional hobby beekeepers. Beekeepers who do their beekeeping work as a pleasurable hobby are in this group. Beekeeping itself is the motivation of their work, not the generation of income. Taking care of the bee families is not a significant time demand for them. They use the produced honey in the family, or sell it at their house or maybe at the local market. The other group within the hobby beekeepers is the starter beekeepers. Lacking expert knowledge and experience they are only trying to get familiar with the beekeeping industry. According to the beekeepers opinion, one can decide if he wants to further develop his beekeeping activities after spending 2-3 years in honey production.

The hobby beekeepers develop standing apiaries, they do not do migration. Next to their honey collection activities, they can also do other activities, like propolis production or royal jelly production.

3.4.2.2. "Subsistence" beekeepers

The "subsistence" beekeepers are in the other group. 53 % of the respondents are in this group. The numbers of their bee families are about 51-150, although the upper limit can be close to 200 families. They can do

their beekeeping work as a main profession or it could be an auxiliary activity, but the motivation of their work is to generate income. They concentrate on honey production mainly, but they can do pollen collection and bee family sales to generate complementary income.

Necessity to migrate the "subsistence" apiaries is influenced by the natural flora and the variability of cultivated plants in the 10-15 km area of the beekeeping sites.

The minimal capital demand to start subsistence beekeeping is 2-3 million forints, which can return within 2-3 years. To achieve this great professional knowledge and experience and favourable weather is necessary. This group of beekeepers sells the produced honey through variable channels. Mostly in bulk in barrels, but they also sell smaller amounts on the markets and at their homes.

3.4.2.3. "Industrial (professional) beekeepers

Respondents who have more than 150 bee families and use "industrial" technology are in the professional beekeepers group (26%). Their main goal is to generate income also. The beekeeping activity is their main profession. They often employ seasonal workers to help in the beekeeping work.
They conscientiously try to lower the costs and increase the yield. Because of the big number of the bee families most of them regularly do migration.
Some professional beekeepers package the produced honey in packaging plants and sell it that we, also some of them sell the honey in bulk in barrels to buyers.

3.4.3. Honey production and marketing

3.4.3.1. Production of different types of honey

A separate chapter in the questionnaire deals with the production and marketing of honey. For the “How have your honey production changed?" question, I received the following answers. Beekeepers in general produce the same type of honey year after year. The data from the questionnaire only goes back to two years, so this cannot genuinely confirm this, but the deep interviews and the secondary data unambiguously support it. Acacia is on the first place among the produced honey types. 90 % of the respondents produce this kind of honey. This can be explained with the outstanding demand for Hungarian acacia honey. Canola honey is on the second place with 73 %. Compared to the national average linden honey production is much higher in the South-Transdanubian region, however only 53% of beekeepers produce linden honey on a regular basis. (Despite of the good geographical location, the explanation lies in the capriciousness of the linden trees nectar production). 63% of the beekeepers are interested in the production of sunflower honey. According to them, with the spreading of hybrid types, their nectar production decreased significantly. 43% of beekeepers produce mixed flower honey, and 20% produce other, special types of honey, that are not characteristic to the region.

3.4.3.2. Marketing of the produced honey

Examining the honey marketing channels, we can state, that 63% of the respondents choose to sell the honey in bulk, to buyers. They explain it with the fact that the buyer goes to their house and pays the price of the

honey in one bulk sum. It is very alluring for the Hungarian beekeepers, because lack of liquidity is a great problem in the sector. One can observe a loose connection between professional beekeepers and marketing to buyers (C=0,231; p≤0,000), and there is a medium connection if we examine the connection between subsistence beekeepers and marketing honey in bulk.

However 22% of the beekeepers sells honey directly from the house, and 12% sell their merchandise at the local market. Connection with supermarket chains is not characteristic to the region. This can be explained with the high listing fees and shelf prices.

Occasionally the beekeepers utilize other beekeeping industry income sources next to honey production. Bee family, bee swarm marketing is the most significant, but 11% of the respondents are engaged in pollen collection also.

3.4.3.3. Collection information about the honey market

The question "How Hungary's honey consumption has changed in the last five years?" the beekeepers answered the following. Significantly decreased 10%, decreased 7%, has not changed 67%, increased 3%, significantly increased 11%, no response 2%. Their opinion about honey consumption was influenced by their experience during marketing, the marketing channel chosen, and honey market information from different sources.

Looking at the trustworthiness of the information sources they had to value some information sources on a 1-5 scale (like school grades). 76% found information from friends and acquaintances not trustworthy, 21% found it moderately trustworthy and only 3% found it trustworthy. Almost unanimously 88% found the honey market picture from the consumer no tat

all trustworthy. The remaining 12% are split among moderately trustworthy, trustworthy and totally trustworthy answers (in a ratio of 4-4-4%) The picture from other beekeepers, in my opinion, mirrors the mistrust within the honey producing industry. Only the trustworthiness of buyers was rated lower than that. Trustworthiness of information from professional advisors, local associations, lectures and professional papers were rated outstandingly high.

3.4.3.4. Added value and image

Regarding the honey quality assurance system 89.9% of the respondents agreed totally and found it necessary to develop a quality assurance system together with a unified follow-up system.

Examining the added value, we determined seven value adding variables. In the first round, the importance of home-delivery had to be determined on a scale of 1 to 5. On the basis of the responses that were received, we determined that on the importance of home-delivery 5% of beekeepers consider it the most important, 5% consider it important, 10% somewhat important, 33% considered it not very important, and 47% consider it of no importance at all. 1% did not answer or did not know the answer.

The results for special equipment and packaging turned out similarly. The respondents consider special sizes and bottles and packaging important. On a scale of 1-5, 65% rated it as a 4.

On the question of special packaging the beekeepers opinions were evenly divided.

The importance of this to the product was judged in the following manner based on the filled out questionnaires. 15% consider it especially

important, 23% consider it important, 20% consider it of average importance, 11% consider it not important, and 28% consider it of no importance at all.

During the rating of individual packaging, 33% of respondents considered it especially important, 27% important, 21% judged individual packaging of average importance.

It can be said about the users' recommendations, that the majority of beekeepers place an emphasized importance on this type of information of customers.

Also it is very important to emphasize the big numbers that the importance of special information received. 34% of the respondents considered it especially important, 30% important, 12% considered it of average importance.

During my research work I also examined the importance of a unified image shaped by several producers. First I analyzed the question of unified name usage. 21% of the responses thought it "of average importance" and 35% found it "not important at all" to use a unified name.

In the question of a common label, 76% of the beekeepers find it important or especially important to use a common label.

Unified packaging was valued important by 60% of the respondents.

75% of the responses to the unified quality assurance question found it especially important, 19% important, 5% considered quality assurance of average importance.

Looking at the importance of unified commercials we can state that 71% of the respondents finds at least important to use common commercials.
In the question of unified logos and brochures the beekeeper society is divided. The same is true for common programs.

It is very important to emphasize the importance of united interest representation 66% of the responses to the united interest representation question found it especially important, 22% important (table 4).

4. table

Consideration of the elements of the unified image (in %)

Elements of the unified image	Evaluation (in %)					Does not know	No answer
	1	2	3	4	5		
Unified name	35	17	21	12	8	2	5
Common label	-	12	12	31	45	-	-
Unified packaging	13	12	14	33	27	-	1
Unified quality assurance	-	1	5	19	75	-	-
Unified commercials	1	5	22	28	43	1	-
Unified logos and brochures	10	22	32	18	12	5	1
Common programs	12	13	25	24	24	1	1
United interest presentation	-	2	10	22	66	-	-

3.4.4. Cooperation of beekeepers

I put together a separate set of questions about willingness for cooperation as it was one of the goals of my study. As the first step, I wanted to survey what kind of experience, prejudice and information the beekeepers have about different forms of cooperation and the possibilities they offer.

For the question “Have you ever been a member of any voluntary economic association?” 20.1% of the respondents answered yes.

77% of the questioned people would be willing to work together with the other beekeepers in some form of economic association. There is no unanimous opinion, but 53% of the respondents would choose the new type cooperative, 30% integration, 10% joint stock company and 5% would choose limited corporation as a form a cooperation (5. table).

5. table

Respondents opinion about different forms of economic cooperation (in %)

Forms of cooperation	**Beekeepers answers** (in %)
New type cooperative	53
Integration	30
Joint stock company	9
Limited corporation	5
Other	1
Does not know	1
No answer	1

Based on the data from the questionnaire, one can state, that the beekeepers do not have enough information about the conditions of different types of economic cooperation and about the possibilities they could offer. However one can also state, that they are willing to spend money on the representation of their interests.

3.5.4. Determining target group segments

During the questionnaire looking at the region's beekeepers' willingness for cooperation we determined three segments: the "Resistance", the "Thinkers" and the "Advocates" groups. I organized a multi-variable data set by detecting the previously not known relations' structure with the help of a cluster analysis. I tried to develop such groups; a cluster, the elements of which connect to each other as tightly as possible and differ from the elements of other clusters.

3.4.5.1. The "resistance" group

The first cluster received the name "**Resistance**" because its members have no inclination at all for any economic cooperation. 9% of the examined people are in this cluster. Their level of education is solely grammar school or vocational school. The above 55 year-old age group is in this category. Most of the cases they have already had some king of negative experience regarding cooperatives. Quality assurance fro the honey production and marketing does not have an outstanding role for them. These beekeepers prefer selling honey from the house and in bulk. These beekeepers mostly use the lying type hives.

3.4.5.2. The "thinkers" cluster

The second cluster is made of the "Thinkers", their ratio is 40%. They are mildly interested in cooperation and in the possibilities offered by cooperation. Looking at their level of education, the picture is less homogenous.

According to the group's opinion, they do not have enough information about cooperation possibilities. They think that the unified picture within the sector is important, but their opinion varies greatly about the individual image elements.

Added value is characteristic to the cluster, and the demand for quality assurance is added to that.

3.4.5.3. The "advocates" group

The third, 51% group, the "Advocates" group has the beekeepers who unequivocally support the development of economic cooperation within the sector. The members of this group are between 35-55 years old. This group is mostly represented by people with higher level of education. The members of this cluster do not have enough information about the possibilities offered by cooperation, but they have a high demand to develop their interest representation on the market. The beekeepers in this group think added value and quality assurance are very important; they want to solve this next to developing a unified image.

4. CONCLUSIONS

When analyzing the national beekeeping, the sector's success can be seen unequivocally, despite the use of outdated technologies. The honey produced reached the consumers through a two-channel marketing system. The direct marketing, from houses, and on the market is 13%, and the sales in bulk to buyers is 83%. At the current level of national honey consumption of 0,4kg/person/year (sufficient growth is not expected despite the intensive marketing strategy) the beekeepers have to export their produce to assure their subsistence. 80% of the 15.000-16.000 tons of honey produced under favourable weather conditions goes to export. 90% of our honey produced for export goes to the European Union countries, within this it will be used in countries not so far away, in Austria, Germany, Italy and France.

The biggest problem for the beekeepers is the lack of added value of the exported honey that is sold in barrels. In these cases all the added value goes to the buyers (merchants). It is impossible to influence the buying price individually. The boycotts organized by non-stable unities mostly fail because of the special liquidity of the sector. Following this line of thinking it is easy to see that only a well organized economic cooperation form can put the beekeepers into a bargain position and help them make profit from the added value.

During my research, my conclusion was that the best solution would be to form a ***new type cooperative***. *"A cooperative is such an organized collection of not-closed number of people (in our case the beekeepers), which collection's goal is to further and assure their members' defined economic interests through mutual self-help."*

Executing the thought of classic cooperatives within the beekeeping sector, my goal was to build up the market compensation power, to lessen the beekeepers' defencelessness against the other persons who often are in monopole positions and who can negotiate with a significant bargaining advantage against the producers, who are too small on the market on their own. Implicitly, the task is to ensure the different inputs, and get the finished products to the market. To achieve this we have to develop forms of cooperation that ensure formal and legal guaranties through cooperative principles.

The members are very homogenous, every member can be treated similarly, and this can help the spreading of the cooperatives. Unequivocally size effectiveness is in the centre of the operation of the cooperative. Changes in consumer behaviour do not play a role in the development of the imaginary cooperative, although the beekeepers should adhere to the quality requirements on a cooperative basis.

I summarized the strengths, weaknesses, possibilities and dangers offered by a new type cooperative with the help of a SWOT analysis.

6. table

Possibility of a new type cooperative in the South-Transdanubian region (SWOT- analysis)

STRENGHTS	**WEAKNESSES**
• Popular with the beekeepers • Marketing of a guaranteed amount • Can help the development of beekeeping • Unified product quality • Covering the whole product portfolio • Greater influence on the market and on the prices • Decreasing of transaction costs • Coordination of input supply • Decreasing of information costs • Increasing profitability	• Liquidity problems at the beginning • Division of general costs • Earlier negative meaning of the word cooperative • Difficulty in drawing in capital in the future
POSSIBILITY	**DANGERS**
• Unified technology development • Decreasing of the technological risks • Developing new products • Gaining and keeping new markets • EU export • Gaining markets outside of the EU • Winning projects • Winning subsidies	• Undeveloped form of cooperation • Distrust, selfish personal interests • Bee health • Stock accumulation • Liquidity problems • Opposing interests of the market members

5. NEW RESEARCH RESULTS

NEW RESEARCH RESULTS

1. Summarized description of the national beekeeping sector, revealing the facts and connections on the Hungarian honey market.

2. Based on the analysis of the beekeepers of the South-Transdanubian region, three main producer groups' characteristics were defined: the “hobby beekeepers”, the “subsistence beekeepers”, and the “professional beekeepers”.

3. Based on the survey of the region’s beekeepers in the question of willingness for cooperation, and on the evaluating analysis of the survey, three segments were defined: the “Resistance”, the “Thinkers” and the “Advocates” groups.

4. Definition of potential members of the sample value, new type cooperative. Definition of tools recommended for reaching the target group. Showing direction in a practical way to the beekeepers willing to organize into unity.

5. As a synthesis of my research I did a SWOT analysis of the new type future cooperative in the South-Transdanubian region.

6. SUGGESTIONS

I would like to emphasize, that regional level cooperatives should be developed at a minimum. A cooperative of that size has a big enough market share to be competitive on the national and maybe on the international market.

When founding a cooperative, the first step should be to form a horizontal cooperation. During the foundation of the cooperative, the beekeepers have to become united, mutual trust has to be developed, common goals and tasks have to be stated and markets have to be found. This phase of the development matches the operations of a ***collective type cooperative***. In the first years of the foundation of the cooperative, the goal is not to get an extra profit, but to explore the market. The main goal should be to get to know the producers and the buyers. Honey collection should be centralized at 1-1 central site in each county. Similar to the way the beekeepers are used to now; greater amounts of honey would be carried away from the producer by a collector truck. According to preliminary surveys and collected information, if the cooperatives do business directly with the honey packaging wholesalers, the income that used to go to the intermediary buyer would stay at the cooperative. Naturally for this, the cooperative has to guarantee a minimum amount of 15 tons of the same type and quality honey for the packaging wholesaler According to my calculations, 15-20 beekeepers with 50-100 bee families can produce this amount. A small cooperative like that cannot influence the given market price yet, but it can have a limited influence to what is written into the buyer agreement.

In time, the even harsher market competition will make it necessary to follow the main technological guidelines next to the minimally produced quantity and mandatory quality regulations in order for the cooperative to gain market presence.

Financing of the foundation of the cooperative is not an easy task. Most of the beekeepers assets are invested into their bee families and into tools and building necessary for the trade. According to my preliminary calculations, the smallest amount for the foundation and the operation of this type of economic cooperation, even if calculating with the smallest possible operational costs, would be around 3-5 million Ft. Following the one member—one vote principle, and to finance the operation of the cooperative, every member has to buy a 100.000 Ft share when joining the cooperative (calculating with app. 50 members) If the joining share is defined lower, a bank loan or member loans can help financing the cooperative's operations at the beginning. Involvement of other profit oriented assets can endanger the cooperative's independence, so the cooperative has to steer away from utilizing that.
The following regulations in the cooperative's constitution assure repayment of the member loans:

- The beekeeper has to sell all his products through the cooperative.
- A fine has to be paid in case of resignation.

The ***new type cooperative*** dissimilar to the classic cooperative assures a vertical cooperation, which can correspond to a product line type cooperative. Next to the producer integration another main line is present in

the cooperation through different types of contracts, which complement and alter the traditional member-cooperative relation.
According to the conception, the beekeeping product line cooperative would have a role in collection, storage, procession, packaging and marketing, to guarantee calculable partners for the beekeepers. This way the members of the processing and marketing line cannot take the product's gain that should be the fair share of the producer.
Production is mainly based on development of quality products, thus not quantity but quality and efficiency compete, and this is much more modern than factory concentration. The producer can be loyal to his partner if he adheres to the quality regulations; there is no possibility of foul play of the members against each other. The cooperative ends interests existing against different lines, interest relations become more clear, guarantees become more direct. Trust-asset can be developed very quickly between the cooperating members.

The new type cooperative can realize the expected optimal operations, if it is able to guarantee unified quality, and if it can be present on the market with bigger selection and bigger demands of products. It can add value to the product by storage, procession, packaging and other technological operations. The new type cooperative's role in vertical integration is in increasing the members' technological and market efficiency and through this strengthen their income position and independency.

The cooperative is not a prefect solution to all the problems that might come up, but by determining a common goal and developing trust, it can unite and orient the people who have interest in beekeeping.

7. A DISSZERTÁCIÓ TÉMAKÖRÉBŐL MEGJELENT PUBLIKÁCIÓK

TUDOMÁNYOS KÖZLEMÉNYEK

Magyar nyelven megjelent közlemények

1. Bartos Sz.: A méhészet közvetett haszna, avagy a szántóföldi növények beporzása**.** Acta Scientiárium külön száma „ Az alternatív mezőgazdaság tőkeszükséglete" 2006. június 69-73.
2. Bartos Sz. - Csonka I.: A méhészet jelenlegi helyzete és perspektívái. Acta Agraria Kaposváriensis VIII/2004. 57-63.

Proceedings-ben teljes terjedelemben megjelent közlemények

Idegen nyelven megjelent közlemények

1. Bartos Sz.: Hungary's pollen variety and their identification possibilities. II. Európai Tudományos Méhészeti Konferencia, Balatonlelle, 2002. Szeptember 11-13. 28-31. p. (CD)
2. Bartos Sz. – Ocskai G.: The multi level integration in Apiculture of Hungary. 3rd International Conference For Young Researchers, Gödöllő 2004. szeptember 3. 14-17.
3. Bartos Sz. – Ocskai G.: The economic significance of pollination by bees. 9th International Scientific Days Of Agricultural Economics. Gyöngyös, 2004. március 25-26. 273. p. (CD)
4. Bartos Sz. – Ocskai G. – Klapsz K.: The effect of the National aits on the Hungarian apiculture. III. International Conference, Mosonmagyaróvár 2006. április 6-7 (CD)

5. Bartos Sz. – Ocskai G. – Klapsz K.: The legal aspects of apiculture in Hungary and the EU. III. International Conference, Mosonmagyaróvár 2006 április 6-7 (CD)

Magyar nyelven megjelent közlemények

1. Bartos Sz.: Betekintés a magyar méz előállítás és értékesítés alakulásába. Erdei Ferenc III. Tudományos Konferencia. Kecskemét, 2005. július 23. (CD)
2. Bartos Sz.: A magyar méhészeti ágazat helyzete számokban. Erdei Ferenc III. Tudományos Konferencia. Kecskemét, 2005. július 23. (CD)
3. Bartos Sz.: Magyar méhészet az EU csatlakozás küszöbén. X. Ifjúsági Tudományos Fórum, Keszthely 2004. április 29. (CD)
4. Bartos Sz.: Magyar mézpiac elemzése különös tekintettel az akácméz értékesítési szerveződések lehetőségeire XII. Ifjúsági Tudományos Fórum 2006. április 20. (CD)
5. Bartos Sz. – Keszi A.: Atkák a méhészetben. VI. Nemzetközi Élelmiszertudományi Konferencia. Szeged, 2004. máj. 20-21. (CD).
6. Bartos Sz. – Klapsz K. – Ocskai G.: Méhészetek termelőkapacitásának alakulása Magyarországon. X. Nemzetközi Agrárökonómiai Tudományos Napok, Gyöngyös 2006. március 30-31. (CD)
7. Bartos Sz. – Klapsz K. – Ocskai G.: Helyzetkép a magyar mézértékesítés alakulásáról. X. Nemzetközi Agrárökonómiai Tudományos Napok, Gyöngyös 2006. március 30-31. (CD)

ISMERETTERJESZTŐ KÖZLEMÉNYEK

1. Bartos Sz.: A méz előállítás és forgalmazás jogi háttere. In: Dolgozatok a Gazdasági jog témaköreiből. Kaposvár, 2004

ELŐADÁSOK

Idegen nyelven

1. Bartos Sz.: Swot analisis of beekeeping among the EU 25 chances possibilities and dangers. Ludów Polskim,2005. június 9.

Magyar nyelven

1. Bartos Sz.: A méz táplálkozás - élettani jelentősége és piaci kilátásai Kaposvári Egyetem. *Regionális Élelmiszertudományi Kollokvium.* 2006. november 17.